

### **Remarks**

The Applicants have amended the Specification to place it into better condition for allowance. Entry into the official file is respectfully requested. The Applicants have also amended Claims 1-5 and 7-16 with respect to form. No substantive changes have been made. However, those claims are now in better condition for allowance. Entry into the official file and consideration on the merits is respectfully requested.

The Applicants acknowledge the designation that the restriction requirement has been made final. The Applicants respectfully submit, however, that the basis for the finality is made on the proposition that the claims of Group I are not novel. However, the Applicants note that there is no rejection made on the basis of novelty, namely §102. The rejections are obviousness-type rejections based on §103. However, the Applicants respectfully submit that §103 is inapplicable for the reasons set forth below.

The Applicants acknowledge the requirement for a new Oath or Declaration. A new Declaration will be filed as soon as it is received.

The Applicants enclose a new Fig. 1 which now contains the legend "Prior Art" at the bottom. Also, the new Fig. 1 is labeled "Replacement Sheet." Confirmation of the acceptability of Fig. 1 is respectfully requested.

Claims 1-5 and 7-16 stand rejected under §103 over Takao. The Applicants note that the Takao publication has now issued into US Patent No. 6,835,487. Thus, the comments below will be directed to the issued Takao patent.

The Applicants note with appreciation the Examiner's detailed comments hypothetically applying Takao against those claims. However, the Applicants respectfully submit that Takao

fails to provide teachings, suggestion or disclosure that would lead one to the claimed subject matter of Claims 1-5 and 7-16. Reasons are set forth below.

The Applicants agree with the Examiner's frank acknowledgement that Takao does not disclose aluminum in the alloy examples. The Applicants also note with appreciation the Examiner's frank acknowledgment that Takao does not describe the presence of a passive film or a limitation of Al, Cr and Fe in the passive film. Again, the Applicants agree.

The rejection nonetheless states that the Applicants' claimed passive film would be inherently present (without using the word "inherent"). This is based on the supposition that the composition is similar as well as the methods applied to the composition. In particular, the rejection states that Takao teaches that the steels treated with the solution of nitric acid and hydrochloric acid which meets the range taught in the Applicants' Specification.

Before addressing this factual point, the Applicants first note that a rejection based on inherency such as this must establish that the claimed feature, namely the passive film with the Al, Cr and Fe limitations, is "necessarily" present. It is not enough that the claimed feature might be present, could be present or is even likely present. The requirement for inherency is extremely high and the claimed characteristic must "necessarily" be present.

The Applicants respectfully submit that Takao does not provide disclosure which meets this requirement. In that regard, Takao teaches adjusting the surface roughness of the stainless steels separator by pickling in aqua regia or an acid mixture. This surface roughness adjustment is made so that the surface roughness Ra of the stainless sheet will be at a range of about 0.01 to about 2.0  $\mu\text{m}$ . This, of course, has nothing to do with the Applicants' claimed subject matter which controls the Cr/Fe atomic ratio and the Al/(Cr + Fe) ratio. This basic concept is illustrated in the Applicants' Specification such as on pages 22 and 23 wherein the Applicants discuss the

well-known pickling step wherein descaling is performed by using the process of immersion into various acids or into an acid mixture or electrolytic process. However, the Applicants recognize that ordinary pickling for the purpose of descaling or surface roughness adjustment is completely different from controlling the contents of various components in the passive film. Thus, the Applicants employ specific means as discussed on page 23 to control those ratios.

There is no such teaching in Takao with respect to the passive film or controlling various ratios of components of the passive film. It would therefore not be obvious to one skilled in the art to control the contents of selected compositional elements of the Applicants' passive film based on the disclosure of Takao because Takao does not even recognize passive films, much less the importance of constituent elements of the passive film or their relative ratios.

In any event, the fact of any hypothetical passive films on Takao steel sheets being within the Applicants' claimed passive films would merely be coincidental, but would surely not satisfy the high burden of being inherently or "necessarily" present. This can be seen by looking to Example 1 of Takao. In column 10 in the paragraph beginning at line 45, it can be seen that the surface roughness was controlled (as opposed to the Applicants' objective of controlling the proportions of selected constitutional elements of their passive film), by immersing a cold-rolled sheet in an acid mixture of 8 mass % and 2.5 mass % hydrofluoric acid in the standard pickling step. This is quite different from what the Applicants do. Again, inviting the Examiner's attention to page 23 in the Applicants' Specification wherein a mixture of nitric acid and hydrofluoric acid were used, it can be seen that the nitric acid/hydrofluoric acid solution should have 1.5 times higher concentration of hydrofluoric acid to nitric acid to be effective.

This is sharply contrasted to Example 1 of Takao which uses a very different type of solution. In that case, there is almost 4 times as much nitric acid on a relative basis to

hydrofluoric acid. This is essentially the opposite of the Applicants which utilize more hydrofluoric acid than nitric acid. For example, the Applicants' specification on page 23 at lines 1 to 9 states:

“the Cr/Fe atomic ratio was increased and O(M) / O(H) was decreased and favorable results could be gained when an acidic solution having a 2-10 times higher concentration of hydrochloric with respect to the concentration of nitric acid was used.”

In sharp contrast, Takao discusses Experiment 2 and Example 2 by explaining: “pickled with aqua regia (mixture of 1:3 nitric acid/hydrochloric acid).” In general, and also with respect to Takao, aqua regia is prepared by mixing commercially available concentrated nitric acid (about 70 mass %) and concentrated hydrochloric acid (about 35 mass %) by a volume ratio of 1:3 and the mixed liquid comprises nitric acid:  $70 \text{ mass \%} \times 1/4 = 17.5 \text{ mass \%}$  and hydrochloric acid:  $35 \text{ mass \%} \times 3/4 = 26.25 \text{ mass \%}$  and therein the concentration of the hydrochloric acid to the nitric acid is  $26.25/17.5=1.5$ , which is less than twice and the liquid is different in terms of the composition of the Applicants' preferred acid solution.

One skilled in the art would readily glean from this very different treatment solution that a passive film that might be present on the surface of the Takao stainless steel, if such a passive film is present at all, could very likely have different compositional elements and different ratios of those compositional elements based on the very different treatment solutions used relative to the Applicants' treatment solution. Thus, the Applicants respectfully submit that one skilled in the art would have a reasonable expectation that any passive film on the Takao Example 1 sheet could very likely be different from the passive film on the Applicants' steels.

Moreover, there is no discussion in Takao as to the temperature of the treatment and the relative processing times. Clearly, those variables would likely have a serious impact on the compositions of the passive films.

As a consequence, the Applicants have factually established that the Applicants' claimed passive films are not "necessarily" present on the Takao steel sheets. Is it theoretically possible that a Takao steel sheet might have the claimed passive film with the ratios of compositional elements? Maybe. However, the fact that the passive film may be or could be present on a Takao steel sheet does not satisfy the requirements of inherency under MPEP §2112. Moreover, the Applicants' claimed passive films with claimed ratios of selected compositional elements is anything but obvious over Takao. Takao discloses pickling steel sheets for the purpose of adjusting surface roughness. That is not what the Applicants do. The Applicants specifically define the ratio of selected components in the passive sheet to achieve completely different objectives having to do with electrical conductivity. There would therefore be no motivation if one skilled in the art were to look to Takao to attempt to vary the ratios of selected components in a passive film on the surface of the steel sheet given the fact that Takao does not even disclose passive films, the compositions in those passive films or their ratios. Withdrawal of the rejection based on Takao is respectfully selected.

Claims 1-5 and 7-16 stand rejected under 35 USC §103 over Hodgson. The Applicants note with appreciation the Examiner's detailed comments hypothetically applying Hodgson against those claims. The Applicants nonetheless respectfully submit that Hodgson fails to provide disclosure, teachings or suggestions that would lead one skilled in the art to the subject matter of those claims. Detailed reasons are set forth below.

The rejection states that the limitations on the surface properties such as the Cr/Fe ratio meet the claimed ratio on pages 17-18 and Fig. 4. Page 17 of Hodgson at the bottom of the page indeed recites that the chromium content significantly exceeds the iron content. However, that is a steel that has been treated in a way that is completely different from the Applicants'

treatment as previously discussed above with respect to Takao. In particular, Hodgson performs an anodic treatment which enriches the surface layer of the stainless steel such that the iron chromium content in the surface region of the treated steel is reduced.

Such anodic treatment is performed with an electrolyte through which a current is passed. Page 16 of Hodgson provides sulfuric acid at 60°C as one electrolyte. Other acids are shown in Table 2, for example. Without this treatment, however, the Hodgson stainless steels as represented in other samples such as Samples 1 and 2 as described on page 17 have an iron content that is substantially greater than the chromium content. Thus, these samples that have not been subjected to the specific anodic treatment of Hodgson fall outside the Applicants' claimed range.

In sharp contrast, the Applicants do not provide such an anodic treatment. Such anodic treatment in Hodgson is what enables the "enrichment of the surface layer." There is no disclosure, however, of the Applicants' claimed ratios in the absence of that anodic treatment. In fact, Hodgson discloses that the Applicants' claimed ratios are not achieved unless submitted to the anodic treatment.

Hodgson pertains, as recited in Claims 4 to 7 and Table 1 in the specification, to austenitic stainless steel (particularly, 300 series stainless steel, including SUS304 and SUS316). On the other hand, the stainless steel recited in Claims 1 to 16 is ferritic stainless steel, which does not include Ni. Thus, the composition and structure of the steel are quite dissimilar.

The Applicants therefore respectfully submit that Hodgson actually demonstrates that the Applicants' claimed stainless steels are likely to be inherently different from the Hodgson steels because the Hodgson steels require anodic treatment to achieve certain similarities and ratios that the Applicants do not need to employ. Instead, the Applicants utilize a different methodology to

achieve their ratios. The problem with Hodgson is that it factually demonstrates that the Applicants' claimed steels are likely to be quite different from the steels of Hodgson that have been subjected to its anodic treatment. As a consequence, the compositions are not processed similarly, but are processed quite differently and therefore likely do not have the same properties. These facts demonstrate that it is likely not possible for the steels of Hodgson to inherently have the same properties. There is very good likelihood that the properties are quite different as Hodgson itself factually shows.

Hodgson also fails to discuss the potential impact of aluminum and it would therefore be anything but obvious to make modifications to the Hodgson stainless steels that would or even could result in the Applicants' claimed aluminum ratios. Withdrawal of the rejection is respectfully requested.

Claims 1-5 and 7-16 are rejected based on nonstatutory obvious-type double patenting over Claims 1-30 of US Patent No. 6,835,487. The Applicants agree that the conflicting claims are not identical and does not teach aluminum. However, there is no evidence in the '487 patent that aluminum would have been present as an unavoidable impurity. The fact that aluminum is not discussed in the '487 patent does not mean that it can simply be classified as an unavoidable impurity. Aluminum can be present in any amount. Characterization of the amount of aluminum being present as only an unavoidable impurity is nothing more than speculation that is not supported by the '487 description.

Moreover, irrespective of the fact that the '487 patent discloses a pickling process, this Application makes it clear that an ordinary pickling process is not sufficient to result in the Applicants' claimed characteristics. The Applicants again invite the Examiner's attention to the final paragraph on page 22 which recites that the process in this application is "totally different"

from the solutions used in “ordinary pickling.” The Applicants thus respectfully submit that ‘487 is completely inapplicable to Claims 1-5 and 7-16. Withdrawal of the double-patenting rejection is also respectfully requested.

In light of the foregoing, the Applicants respectfully submit that the entire Application is not in condition for allowance, which is respectfully requested.

Respectfully submitted,



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